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Hesperiidae of Vietnam 8[1]

Three new species of *Celaenorrhinus* HÜBNER, 1819, with notes on the *C. maculosa* (C. & R. FELDER, [1867]) -*oscula* EVANS, 1949 group

(Lepidoptera, Hesperiidae)

by

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Summary: Three new species of *Celaenorrhynus* HÜBNER are described and figured: *C. inexspectus* spec. nov. from North Vietnam (Tamdao Mts.), allied to *C. maculosa* (C. & R. FELDER, [1867]); *C. kuznetsovi* spec. nov. from Central Vietnam, similar to *C. oscula* EVANS, 1949; and *C. incestus* spec. nov., also from Central Vietnam, somewhat combining the characters of both species. A synopsis of the so far known taxa of the *C. maculosa-oscula* group is provided, the rank of *C. osculus major* Hsu, 1990 being raised to species level.

The group in question has so far been considered to be represented by two species, viz. *C. maculosa* (C. & R. FELDER, [1867]), with the ssp. *taiwanus* MATSUMURA, 1919, and *C. oscula* EVANS, 1949, with the ssp. *major* Hsu, 1990, the principal characteristic feature of the group, as originally stated by EVANS (1949), being the yellow basal striping on the underside (partly on the upperside) of both wings.
Material collected in North and Central Vietnam in 1995 and 1999 brought to light further three new species, the description of which is given below.

Holotypes and most of the paratypes are kept in the collection of the Department of Entomology of the Moscow State University; part of the paratypes of the first two species will be deposited in The Natural History Museum (London).

Celaenorrhinus ***inexspectus* spec. nov.**

(Colour plate XVb, figs. 1-2)

Holotype ♂: North Vietnam, Vinh Phu Province, Tam Dao Mts., 1000 m, 27.V.1995 (leg. A. MONASTYRSKII).
Paratypes: 1 ♀, the same label as the holotype; 2 ♀♀, the same locality, 3.VI.1995 (all leg. A. MONASTYRSKII).

Description
Antennae plain brown, base of club white-ringed. Palpi yellow below. Forewing upperside: ground colour dark brown without yellow basal striping or suffusion; white subapical spot in

1 For (7) see DEVYATKIN, A. L.: A Contribution to the Hesperiidae fauna of the southern Vietnam. - Atalanta **31** (1/2): 198-204.

space 6 (the largest of the three) displaced towards apex; spots in spaces 4–5 small, sub-equal; the spot in space 3 relatively large, roughly equal in size to the basal and discal spots in space 1b; the spots in cell and space 2 also large and sub-equal, the latter being rather triangular. Hindwing upperside: ground colour dark brown, basal striping much reduced and rather faint; yellow spots contrasting, developed as in *C. maculosa* (colour plate XVb, figs. 3–4); only traces of spots in spaces 4–5 (no spots in females). Underside: basal yellow striping also much reduced, on the forewing being clearly developed only in cell and on hindwing being rather faint; all markings the same as on the upperside except yellow dots in spaces 4 and 5 on hindwing are more visible. Fringes of forewing brown, yellow in space 1b; those of hindwing chequered.
Sexes similar.
Length of forewing: ♂ 20.5 mm, ♀♀ 22.5–23 mm.

♂-genitalia (fig. 1): Tegumen rather broad, with rounded shoulders; uncus bifurcate, its ends slightly convergent; ends of gnathos enlarged. Valva rather short and broad; cuiller distally rounded, its dorsal end with a single indented projection. Manica sclerotized, short and massive, bifurcate; distal ends of its lobes sharp and pointed, without spines; its proximal side evenly trilobate. Aedeagus short and very stout, its distal end densely covered with microtrichia; a single long and curved cornutus on vesica.

♀-genitalia (fig. 6): Papillae anales more or less triangular in shape. Apophyses posteriores slender and pointed, equal in length to papillae. Postvaginal plate wide, weakly sclerotized, with a rounded distal projection. Ductus bursae also wide, curved, with a diffuse longitudinal field of sclerotization in the distal part. Bursa copulatrix long, membranous, narrow in the proximal part.

The new species is very similar to *C. maculosa* (colour plate XVb, figs. 3–4) in external features, being slightly smaller and differing in reduced basal striping, larger spots in cell and space 2 of forewing and reduced yellow spots in spaces 4–5 on the hindwing. In the male genitalia the principal difference is the shape of the manica, which is clearly tetrafurcate with slender processes in *C. maculosa* (fig. 2).

Celaenorrhinus ***incestus*** **spec. nov.**
(Colour plate XVb, figs. 5–6)

Holotype ♂: Central Vietnam, Quang Binh Province, Minh Hoa district, vic. of Yen Hop village, 25.IV.1999 (leg. A. L. Devyatkin).
Paratypes: 5 ♂♂, 9 ♀♀, the same label as the holotype except dates: 1 ♂ 8.IV., 1 ♂ 9.IV., 1 ♂ 10.IV., 1 ♀ 16.IV., 1 ♀ 18.IV., 1 ♀ 21.IV., 1 ♂, 4 ♀♀ 25.IV., 2 ♀♀ 26.IV. (all leg. A. L. Devyatkin); 1 ♂, Central Vietnam, Nghe An Province, Pu Mat Nature Reserve, 9.IV.1998 (leg. Quang, FFI expedition).

Description
Antennae brown, base of club white-ringed. Palpi yellow below. Forewing upperside: ground colour brown without clear yellow striping (base of wings suffused with yellow scales in fresh

specimens); subapical spots almost in line, variable in size, the spot in space 7 always being the smallest; spots in spaces 4 and 5 equal in size to subapical spots or slightly larger; the spot in space 3 narrow; the spot in the cell also relatively narrow, roughly quadrangular; the spot in space 2 variable in shape, shorter than the spot in the cell; discal spots in space 1b sub-equal in size, the lower being generally slightly larger; basal spot in space 1b very small, rounded (in most specimens, especially females, represented by a small dot). Hindwing: yellow pattern fully developed, including two small dots in spaces 4 and 5; the colour of spots rather tawny than yellow; no clear basal striping, only a yellow suffusion at the base of the wing. Underside: all markings the same as on the upperside, except that the basal spot on the forewing is larger, and the basal striping can be traced on both wings. Fringes of the forewing brown (yellow in space 1b); fringes of the hindwing chequered.
Sexes similar.
Length of forewing: ♂♂ 23–24 mm, ♀♀ 24.5–26 mm.

♂-genitalia (fig. 3): Tegumen with rectangular, rounded shoulders; uncus bifurcate, its ends roughly parallel. Valva elongate, cuiller with a single projection on the dorsal end. Manica strongly sclerotized, massive, bifurcate, its lobes being roughly leaf-shaped (lateral view) and dorsally serrate. Aedeagus with a single long cornutus.

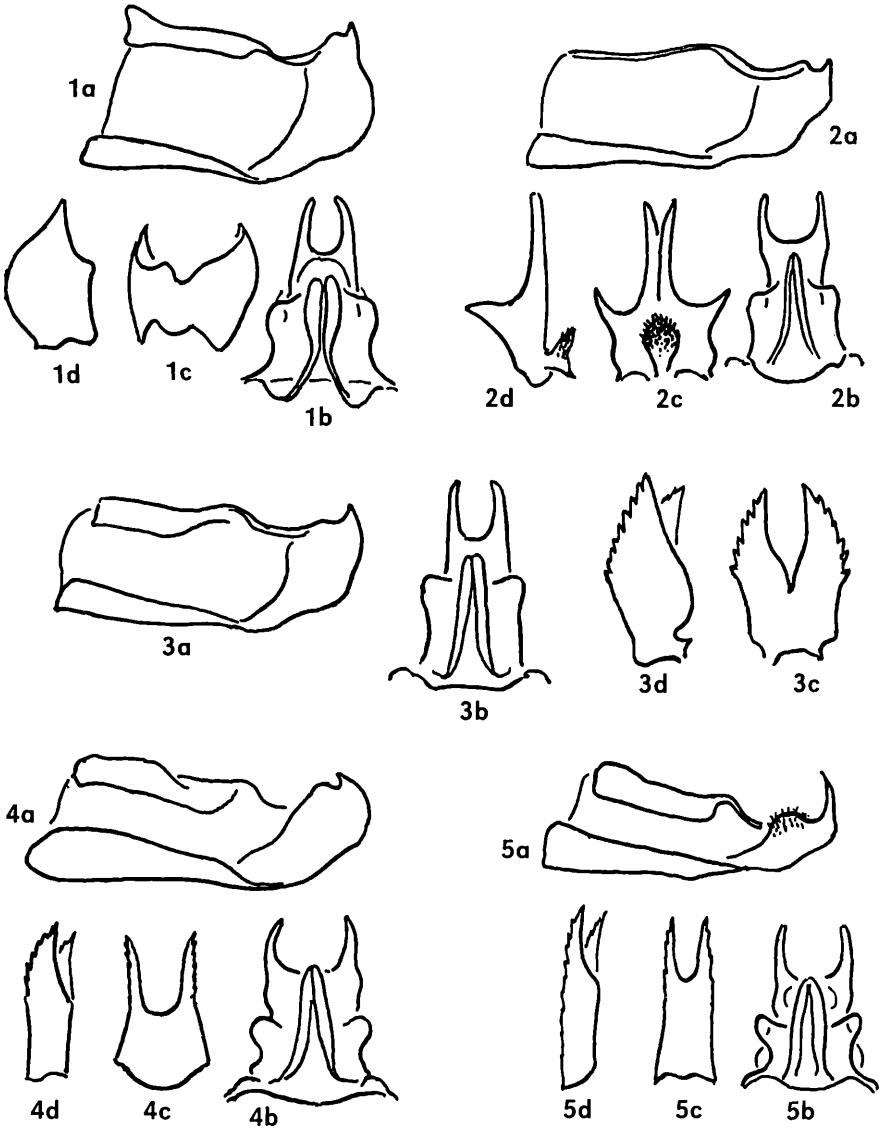
♀-genitalia (fig. 7): Papillae anales more or less triangular. Apophyses posteriores slender, pointed, roughly equal in length to papillae. Postvaginal plate broad, with a wide, evenly rounded or almost rectangular, distal projection. The ostium area strongly sclerotized throughout, forming a powerful antevaginal plate with two wide rounded lobes, covered with microtrichia, and an almost rectangular antrum; ductus bursae rather short, curved, its distal part narrow and sclerotized. Bursa copulatrix membranous, long and narrow (distally wider).

The new species is very similar to *C. maculosa* (colour plate XVb, figs. 3–4) in external characters, differing from the latter in a narrower cell spot and brown fringes of the forewing (clearly chequered in *C. maculosa*) and in a less developed basal striping on the underside. The male genitalia are in general also similar to those of *C. maculosa*, in respect of the shape of valva and uncus; however the bifurcate and serrate manica is more characteristic of the *C. oscula* taxa-group.

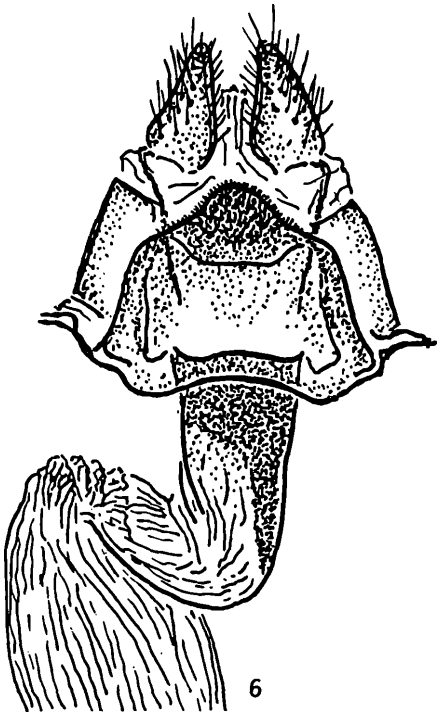
Celaenorrhinus ***kuznetsovi*** **spec. nov.**
(Colour plate XVb, figs. 7–8)

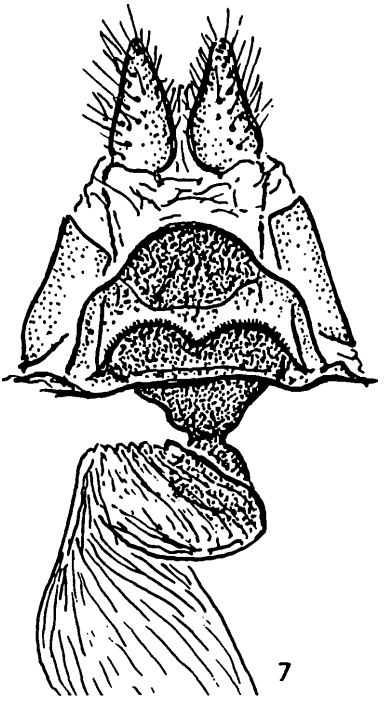
Holotype ♂: Central Vietnam, Quang Binh Province, Minh Hoa district, vic. of Yen Hop village, 17.IV.1999 (leg. A. N. Kuznetsov).

Description
Antennae plain brown, base of club white-ringed. Palpi yellow below. Forewing upperside: ground colour dark brown, basal yellow striping well developed as in *C. oscula* (colour plate XVb, figs. 9–10); a white subbasal dot in space 1b; subapical spots in spaces 6 to 8 very small and rounded, the one in space 6 being the largest and displaced towards the apex; spots in spaces 4–5 small, sub-equal, directed to tornus (to termen before tornus in *C. oscula*); the spot



Figs. 1–5: Male genitalia of *Celaenorrhinus* (a – right clasp, b – uncus and gnathos, ventral view, c – manica, ventral view, d – id., lateral view). Fig. 1 – *Celaenorrhinus inexspectus* spec. nov; fig. 2 – *Celaenorrhinus maculosa* (C. & R. Felder, [1867]); fig. 3 – *Celaenorrhinus inexspectus* spec. nov.; fig. 4 – *Celaenorrhinus kuznetsovi* spec. nov.; fig. 5 – *Celaenorrhinus oscula* Evans, 1949.





Figs. 6, 7: Female genitalia of *Celaenorrhinus* (ventral view). Fig. 6 – *Celaenorrhinus inexspectus* spec. nov.; fig. 7 – *Celaenorrhinus incestus* spec. nov.

in space 3 elongate, almost linear, placed nearer to the spots in spaces 4–5 than in *C. oscula*; the spot in space 2 rather small, of a rounded triangular shape; spots in space 1b elongate, the lower being equal in size and shape to that in space 3; the cell spot narrow, roughly rectangular. Hindwing upperside: basal striping and spotting pattern fully developed, the spots being rather tawny than yellow; spots in spaces 4–5 represented by small dots. Underside: basal yellow striping fully developed on both wings; all markings the same as on the upperside. Fringe of forewing brown, with trace of yellow in space 1b; that of hindwing chequered yellow and brown.
Length of forewing 20 mm.

♂-genitalia (fig. 4): Tegumen rather broad, with rounded shoulders; uncus bifurcate, its ends widely separated and parallel. Valva narrow; cuiller much more massive than in *C. oscula* (fig. 5), with a somewhat double projection, the distal part of which is hooked. Manica sclerotized, rather short compared to *C. oscula*, bifurcate, its ends dorsally serrate. Aedeagus slender, with a short ventro-distal projection and a single long and straight cornutus.

Externally the new species is almost indistinguishable from *C. oscula*, differing however in the relative position of spots on the forewing; in the male genitalia, the shape of the cuiller shows the most striking difference. The genitalia of *C. kuznetsovi* also display some similarity to those of ssp. *major* from Taiwan, as illustrated in SHIRÔZU (1967) (as *C. oscula*) and HSU (1990), but external differences are significant.

Notes on the taxonomy and distribution of the *C. maculosa-oscula* group

So far only two species have been recognized in the group in question, viz. *C. maculosa* (C. & R. FELDER, [1867]), with a wide distribution in China (Szechwan to Chekiang and Taiwan), and *C. oscula* EVANS, 1949 (West China), with ssp. *major* HSU, 1990 (Taiwan). Comparison of specimens of *C. maculosa* from different localities shows that the species is rather constant in external characters and male genitalia; specimens from West China (Siao Lou, Ta Tsien Lou) seem to be constantly smaller than those from the type locality (Shanghai) and adjacent territory; if necessary, the name *refulgens* OBERTHÜR, 1896 is available for the West-Chinese population.

The distribution of *C. oscula* needs to be clarified. Ssp. *major* HSU, from Taiwan, is different from the nominate subspecies both superficially and in the male genitalia, and its rank should be raised to species level, *C. major* HSU, **stat. nov.**, as confirmed by its author himself (HSU, per. comm.). This is also indirectly confirmed by the fact that I have a nice fresh male of *C. oscula* from Lao Cai Province (North Vietnam), which shows virtually no differences from typical West Chinese specimens, although this record is very distant from the so far known distribution area of *C. oscula*. Furthermore, the last record allows to suggest a continuous distribution of *C. oscula* from West China to North Vietnam through the meridional mountain ranges of South China, as it seems to be the case with some other butterflies.

In view of these distributional considerations, the discovery of three new species of this group in a relatively small territory of North and Central Vietnam is highly unexpected. It seems likely that in South East Asia, at the extreme south of the distribution area of the group, its representatives may show a high extent of endemism.

Thus, the taxonomic contents of the *C. maculosa-oscula* group should be raised to 6 species and can at present be summarized as follows:

1. *Celaenorrhinus maculosa* (C. & R. FELDER, [1867]) – West to South East China
   ssp. *taiwanus* MATSUMURA, 1919 – Taiwan
2. *Celaenorrhinus inexspectus* DEVYATKIN, spec. nov. – North Vietnam
3. *Celaenorrhinus incestus* DEVYATKIN, spec. nov. – Central Vietnam
4. *Celaenorrhinus major* HSU, 1990, stat. nov. – Taiwan
5. *Celaenorrhinus kuznetsovi* DEVYATKIN, spec. nov. – Central Vietnam
6. *Celaenorrhinus oscula* EVANS, 1949 – West China to North Vietnam

It seems highly probable that profound faunistic surveys and taxonomic studies in the South Chinese region and adjacent territories may discover further new taxa in this group.
A female of "*C. maculosus*" from Laos illustrated in OSADA et al. (1999), however, resembles rather *C. ratna tytleri* EVANS, 1926 than any taxon of the *C. maculosa*-group.

Acknowledgements

I am greatluy indebted to Drs. A. L. MONASTYRSKII and A. N. KUZNETSOV (Vietnam-Russian Tropical Centre, Hanoi) for collecting Hesperiidae at my request; to Dr. Y.-F. HSU (National Taiwan Normdl University, Taipei) for his kind help with literature and genitalia drawings on *Celaenorrhynus* from Taiwan; to Messrs. P. R. ACKERY and W. J. REYNOLDS (The Natural History Museum, London) for giving the opportunity to examine the collections of the British Museum and for loan of specimens.

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OSADA, S., UEMURA, Y. & J. UEHARA (ed. by Y. NISHIYAMA) (1999): An illustrated checklist of the butterflies of Laos P.D.R. – Mokuyo-sha, Tokyo, 240 pp., ill.

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Explanation of colour plate XVb (p. 411):

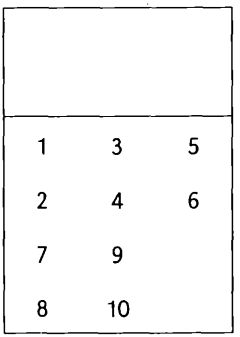

Fig. 1: *Celaenorrhinus inexspectus* spec. nov. holotype ♂, N. Vietnam, Vinh Phu Prov., Tam Dao 1000 m, 27.V.1995, leg. A. MONASTYRSKII, upperside.
Fig. 2: Id., underside.
Fig. 3: *Celaenorrhinus maculosa* (C. & R. FELDER, [1867]), ♂, East China, Prov. Chekiang, Mokanshan, 3.VII.1930. leg. H. HÖNE, upperside (ex coll. BMNH).
Fig. 4: Id., underside.
Fig. 5: *Celaenorrhinus inexspectus* spec. nov., holotype ♂, Central Vietnam, Quang Binh Province, Minh Hoa district, vic. of Yen Hop village, 25.IV.1999, leg. A. L. DEVYATKIN, upperside.
Fig. 6: Id., underside.
Fig. 7: *Celaenorrhinus kuznetsovi* spec. nov., holotype ♂, Central Vietnam, Quang Binh Province, Minh Hoa district, vic. of Yen Hop village, 17.IV.1999, leg. A. N. KUZNETSOV, upperside.
Fig. 8: Id., underside.
Fig. 9: *Celaenorrhinus oscula* EVANS, 1949, ♂, West China, Tien-Tsuen, Chasseurs Indigenes du P. DEJEAN, 1903, upperside.
Fig. 10: Id., underside.

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Colour plate XVa

DEVYATKIN, A. L.: Hesperiidae of Vietnam 6. Two new spwcies of the genera *Suada* DE NICEVILLE, 1895 and *Quedara* SWINHOE, 1907 (Lepidoptera, Hesperiidae). - Atalanta **31** (1/2): 193-197.

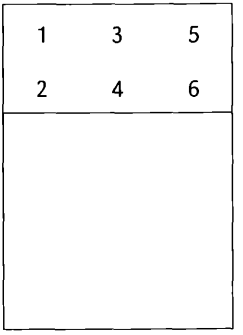

Fig. 1: *Suada albolineata* spec. nov., holotype ♂. N. Vietnam, Vinh Phu Prov., Tam Dao, 26.V. 1996, A. MONASTYRSKII leg., upperside.
Fig. 2: id., underside.
Fig. 3: *Quedara flavens* spec. nov., holotype ♂. N. Vietnam, Ninh Binh Prov., Cuc Phuong National Park, 21.V.1998, M. J. HILL leg., upperside.
Fig. 4: id., underside.
Fig. 5: *Quedara flavens* spec. nov., paratype ♀. N. Vietnam, Bac Can Prov., Ba Be National Park, 5.VI.1997, A. MONASTYRSKII leg., upperside.
Fig. 6: id., underside.

Colour plate XVb

DEVYATKIN, A. L.: Hesperiidae of Vietnam 8. Three new species of *Celaenorrhinus* HÜBNER, 1819, with notes on the *C. maculosa* (C. & R. FELDER, [1867]) -*oscula* EVANS, 1949 group (Lepidoptera, Hesperiidae). - Atalanta **31** (1/2): 205-211.

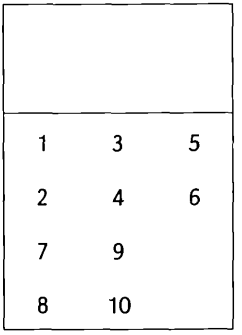

Fig. 1: *Celaenorrhinus inexspectus* spec. nov. holotype ♂, N. Vietnam, Vinh Phu Prov., Tam Dao 1000 m, 27.V.1995, leg. A. MONASTYRSKII, upperside.
Fig. 2: Id., underside.
Fig. 3: *Celaenorrhinus maculosa* (C. & R. FELDER, [1867]), ♂, East China, Prov. Chekiang, Mokanshan, 3.VII.1930. leg. H. HÖNE, upperside (ex coll. BMNH).
Fig. 4: Id., underside.
Fig. 5: *Celaenorrhinus inexspectus* spec. nov., holotype ♂, Central Vietnam, Quang Binh Province, Minh Hoa district, vic. of Yen Hop village, 25.IV.1999, leg. A. L. DEVYATKIN, upperside.
Fig. 6: Id., underside.
Fig. 7: *Celaenorrhinus kuznetsovi* spec. nov., holotype ♂, Central Vietnam, Quang Binh Province, Minh Hoa district, vic. of Yen Hop village, 17.IV.1999, leg. A. N. KUZNETSOV, upperside.
Fig. 8: Id., underside.
Fig. 9: *Celaenorrhinus oscula* EVANS, 1949, ♂, West China, Tien-Tsuen, Chasseurs Indigenes du P. DEJEAN, 1903, upperside.
Fig. 10: Id., underside.

Colour plate XVa/b